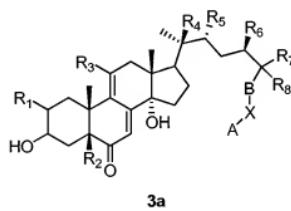
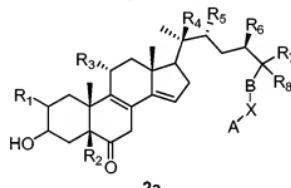
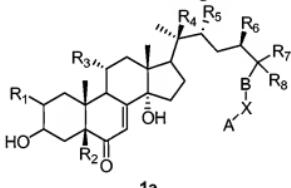


**Amendments to the Claims:**

The listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1. (Currently Amended) An ecdysteroid derivative wherein a fluorescent moiety is attached to an ecdysteroid moiety by derivatisation of a hydroxyl group on the an alkyl side chain of the ecdysteroid moiety, wherein the derivative is capable of binding to an ecdysone receptor or ligand binding domain thereof an ecdysone receptor.
2. (Currently Amended) ~~An~~ The ecdysteroid derivative according to claim 1 wherein the derivative has general structure **1a**, **2a**, or **3a**;



wherein B is  $\text{CH}_2\text{O}$ ,  $\text{CH}_2\text{S}$ ,  $\text{CH}_2\text{NH}$ , O, S, or NH; X is a linking group; A is a fluorescent moiety;  $\text{R}^1$ - $\text{R}^5$  are independently selected from H, alkyl, haloalkyl, OH, or halogen,  $\text{R}^7$ - $\text{R}^8$  are independently selected from H, alkyl, haloalkyl, OH, or halogen or  $\text{R}^7$  and  $\text{R}^8$  together are  $=\text{CH}_2$ ;  $\text{R}^6$  is selected from H, OH, alkyl,

=CH<sub>2</sub> or halogen, or R<sup>6</sup> together with R<sup>7</sup> is a double bond.

3. (Currently Amended) AThe derivative according to claim 2 wherein the alkyl groups are C1 to C20, more preferably, for R<sup>1</sup> and R<sup>2</sup> the alkyl group is C1 to C5.

4. (Currently Amended) AThe derivative according to claim 2 wherein R<sup>1</sup>, and R<sup>5</sup> are OH; R<sup>2</sup> is H or OH; R<sup>3</sup> is H; R<sup>4</sup> is H or OH; R<sup>6</sup> is selected from H, OH, CH<sub>3</sub>, CH<sub>3</sub>CH<sub>2</sub>, or (CH<sub>3</sub>)<sub>2</sub>CH; R<sup>7</sup> and R<sup>8</sup> are independently selected from H, OH, CH<sub>3</sub>, or R<sup>7</sup> and R<sup>8</sup> together can be =CH<sub>2</sub>, R<sup>6</sup> together with R<sup>7</sup> can be a double bond.

5. (Currently Amended) AThe derivative according to any one of claims 2 to 4claim 2 wherein X is selected from the group consisting of C(O)NH, C(S)NH, SO<sub>2</sub> and C(O).

6. (Currently Amended) AThe derivative according to any one of claims 2 to 5claim 2 wherein B is CH<sub>2</sub>O or O.

7. (Currently Amended) AThe derivative according to any one of claims 2 to 6claim 2 wherein the fluorescent moiety is selected from the group consisting of unsubstituted and substituted fluorescein moieties, unsubstituted and substituted dansyl moieties, and unsubstituted and substituted coumarin moieties.

8. (Currently Amended) AThe derivative according to any one of claims 2 to 7claim 2 wherein the derivative is of general structure 1a wherein R<sup>1</sup> and R<sup>5</sup> are OH, R<sup>3</sup> is H, R<sup>7</sup> is CH<sub>3</sub>, and B is CH<sub>2</sub>O and X is selected from the group consisting of C(O)NH, C(S)NH, SO<sub>2</sub> and C(O).

9. (Currently Amended) AThe derivative according to claim 8 wherein R<sup>2</sup>, R<sup>4</sup>, and R<sup>8</sup> are independently selected from H, alkyl, OH, or halogen; R<sup>6</sup> is selected from H, OH, alkyl, =CH<sub>2</sub> or halogen.

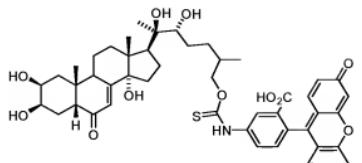
10. (Currently Amended) AThe derivative according to claim 9 wherein R<sup>2</sup> is H, R<sup>4</sup> is OH, R<sup>6</sup> is H and R<sup>8</sup> is H.

11. (Currently Amended) AThe derivative according to any one of claims 2 to 7claim 2 wherein R<sup>1</sup>, R<sup>4</sup> and R<sup>5</sup> are OH, R<sup>2</sup> is H or OH, R<sup>3</sup> is H, R<sup>6</sup> is H or CH<sub>3</sub>, and R<sup>7</sup> and R<sup>8</sup> are H or CH<sub>3</sub>.

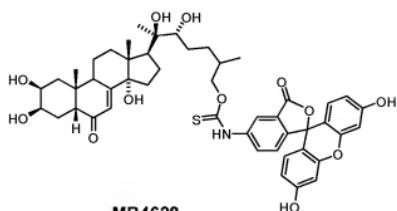
12. (Currently Amended) AThe derivative according to any one of claims 1 to 11claim 2 wherein the ecdysteroid moiety is selected from the group consisting of inokosterone, 26-hydroxyecdysone, 20,26-dihydroxyecdysone, makisterone B, amarasterone A, amarasterone B, ajugasterone B, sidasterone A, sidasterone B, 26-hydroxy-polypodine B, 20-hydroxyecdysone, makisterone A, polypodine B

and rapisterone D.

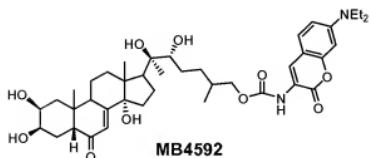
13. (Currently Amended) ~~A The~~ derivative according to any one of claims 1 to 12, ~~claim 1~~ wherein the derivative is selected from the group consisting of:



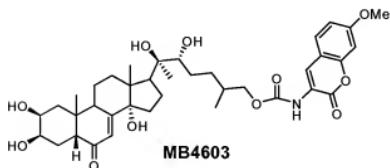
||



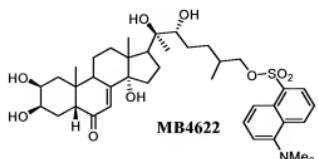
**MB4628**



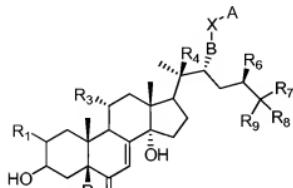
**MB4592**



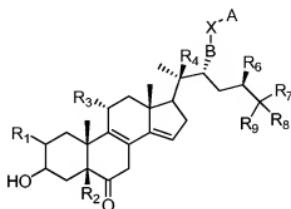
**MB4603**



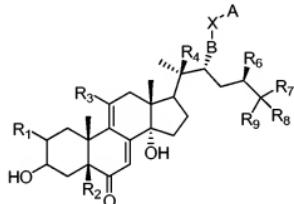
14. (Currently Amended) AThe ecdysteroid derivative according to claim 1 wherein the derivative has general structure **1b**, **2b**, or **3b**;



**1b**



**2b**



**3b**

wherein B is  $\text{CH}_2\text{O}$ ,  $\text{CH}_2\text{S}$ ,  $\text{CH}_2\text{NH}$ , O, S, or NH; X is a linking group; A is a fluorescent moiety;  $\text{R}^1\text{-}\text{R}^4$ ,  $\text{R}^7\text{-}\text{R}^9$  are independently selected from H, alkyl, haloalkyl, OH, or halogen;  $\text{R}^6$  is selected from H, OH, alkyl,  $=\text{CH}_2$  or halogen.

15. (Currently Amended) AThe derivative according to claim 14 wherein the alkyl groups are C1 to C20, more preferably, for  $\text{R}^1$  and  $\text{R}^2$  the alkyl group is C1 to C5.

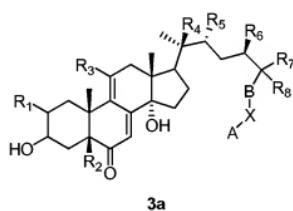
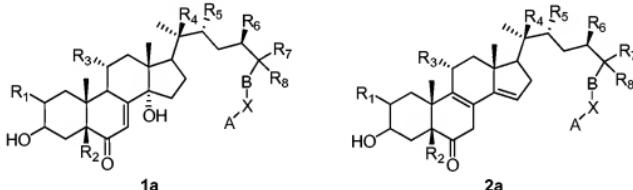
16. (Currently Amended) AThe derivative according to any one of claims 14 to 15-claim 14 wherein X is selected from the group consisting of  $\text{C}(\text{O})\text{NH}$ ,  $\text{C}(\text{S})\text{NH}$ ,  $\text{SO}_2$ , and  $\text{C}(\text{O})$ .

17. (Currently Amended) AThe derivative according to any one of claims 14 to 16-claim 14 wherein the fluorescent moiety is selected from the group consisting of unsubstituted and substituted fluorescein moieties, unsubstituted and substituted dansyl moieties, and unsubstituted and substituted coumarin moieties.

18. (Currently Amended) AThe derivative according to any one of claims 14 to 17 claim 14 wherein R<sup>1</sup> and R<sup>2</sup> are OH; R<sup>2</sup> and R<sup>3</sup> are independently selected from H or OH; R<sup>6</sup> is selected from H or CH<sub>3</sub>, and R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently selected from the group H, OH, CH<sub>3</sub>, F, and I.

19. (Currently Amended) AThe derivative according to any one of claims 14 to 18 claim 14 wherein the ecdysteroid moiety is selected from the group consisting of ponasterone A, 20-hydroxyecdysone, muristerone A, makisterone A, polypodine B, rapisterone D, 2 $\beta$ ,3 $\beta$ ,20R,22R-tetrahydroxy-25-fluoro-5 $\beta$ -cholest-8,14-dien-6-one, 5-deoxykaladasterone, 26-iodoponasterone A, and 25-fluoroponasterone A.

20. A compound selected from the group of compounds consisting of general structures 1a, 2a, and 3a which interact with an ecdysone receptor or ligand binding domain (LBD) thereof;



wherein B is CH<sub>2</sub>O, CH<sub>2</sub>S, CH<sub>2</sub>NH, O, S, or NH; X is a linking group; A is a fluorescent moiety; R<sup>1</sup>-R<sup>5</sup> are independently selected from H, alkyl, haloalkyl, OH, or halogen, R<sup>7</sup>-R<sup>8</sup> are independently selected from H, alkyl, haloalkyl, OH, or halogen or R<sup>7</sup> and R<sup>8</sup> together are =CH<sub>2</sub>; R<sup>6</sup> is selected from H, OH, alkyl, =CH<sub>2</sub> or halogen, or R<sup>6</sup> together with R<sup>7</sup> is a double bond.

21. (Currently Amended) AThe compound according to claim 20 wherein the alkyl groups are C1 to C20, more preferably, for R<sup>1</sup> and R<sup>2</sup> the alkyl group is C1

to C5.

22. (Currently Amended) AThe compound according to claim 20 or 21 wherein R<sup>1</sup>, and R<sup>5</sup> are OH; R<sup>2</sup> is H or OH; R<sup>3</sup> is H; R<sup>4</sup> is H or OH; R<sup>6</sup> is selected from H, OH, CH<sub>3</sub>, CH<sub>3</sub>CH<sub>2</sub>, or (CH<sub>3</sub>)<sub>2</sub>CH; R<sup>7</sup> and R<sup>8</sup> are independently selected from H, OH, CH<sub>3</sub>, or R<sup>7</sup> and R<sup>8</sup> together can be =CH<sub>2</sub>, R<sup>6</sup> together with R<sup>7</sup> can be a double bond.

23. (Currently Amended) AThe compound according to any one of claims 20 to 22 claim 20 wherein X is selected from the group consisting of C(O)NH, C(S)NH, SO<sub>2</sub> and C(O).

24. (Currently Amended) AThe compound according to any one of claims 20 to 23 claim 20 wherein B is CH<sub>2</sub>O or O.

25. (Currently Amended) AThe compound according to any one of claims 20 to 24 claim 20 wherein the fluorescent moiety is selected from the group consisting of unsubstituted and substituted fluorescein moieties, unsubstituted and substituted dansyl moieties, and unsubstituted and substituted coumarin moieties..

26. (Currently Amended) AThe compound according to any one of claims 20 to 25 claim 20 wherein the compound is of general structure 1a wherein R<sup>1</sup> and R<sup>5</sup> are OH, R<sup>3</sup> is H, R<sup>7</sup> is CH<sub>3</sub>, and B is CH<sub>2</sub>O and X is selected from the group consisting of C(O)NH, C(S)NH, SO<sub>2</sub> and C(O).

27. (Currently Amended) AThe compound according to claim 26 wherein R<sup>2</sup>, R<sup>4</sup>, and R<sup>8</sup> are independently selected from H, alkyl, OH, or halogen; R<sup>6</sup> is selected from H, OH, alkyl, =CH<sub>2</sub> or halogen.

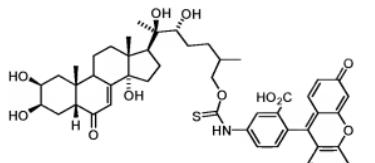
28. (Currently Amended) AThe compound according to claim 27 wherein R<sup>2</sup> is H, R<sup>4</sup> is OH, R<sup>6</sup> is H and R<sup>8</sup> is H.

29. (Currently Amended) AThe compound according to any one of claims 20 to 28 claim 20 wherein R<sup>1</sup>, R<sup>4</sup> and R<sup>5</sup> are OH, R<sup>2</sup> is H or OH, R<sup>3</sup> is H, R<sup>6</sup> is H or CH<sub>3</sub>, and R<sup>7</sup> and R<sup>8</sup> are CH<sub>3</sub>.

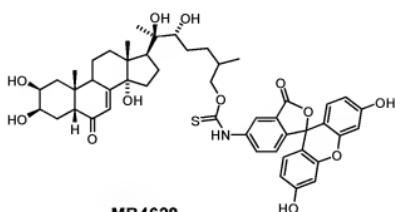
30. (Currently Amended) AThe compound according to any one of claims 20 to 29 claim 20 wherein the a fluorescent moiety is attached by derivatisation to an ecdysteroid selected from the group consisting of inokosterone, 26-hydroxyecdysone, 20,26-dihydroxyecdysone, makisterone B, amarasterone A, amarasterone B, ajugasterone B, sidasterone A, sidasterone B, 26-hydroxy-polypodine B, 20-hydroxyecdysone, makisterone A, polypodine B and rapisterone D.

371 Application  
Filed June 1, 2006  
International Application No. PCT/AU2004/001701  
Preliminary Amendment dated June 1, 2006

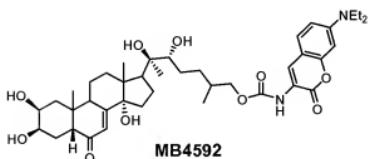
31. (Currently Amended) ~~A~~<sup>The</sup> compound according to any one of claims 20 to 30, ~~claim~~ 20 wherein the compound is selected from the group consisting of:



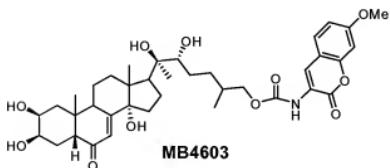
||



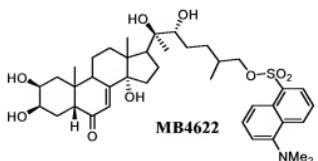
MB4628



MB4592

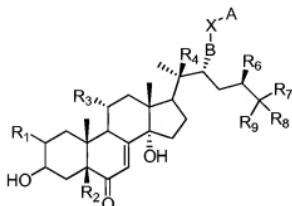


MB4603

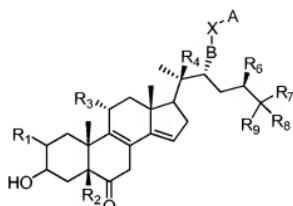


MB4622

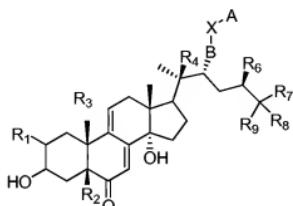
32. A compound selected from the group of compounds consisting of general structures **1b**, **2b**, and **3b** which interact with an ecdysone receptor or ligand binding domain (LBD) thereof;



**1b**



**2b**



**3b**

wherein B is  $\text{CH}_2\text{O}$ ,  $\text{CH}_2\text{S}$ ,  $\text{CH}_2\text{NH}$ , O, S, or NH; X is a linking group; A is a fluorescent moiety;  $\text{R}^1\text{-R}^4$ ,  $\text{R}^7\text{-R}^9$  are independently selected from H, alkyl, haloalkyl, OH, or halogen;  $\text{R}^6$  is selected from H, OH, alkyl,  $=\text{CH}_2$  or halogen.

33. (Currently Amended) AThe compound according to claim 32 wherein the alkyl groups are C1 to C20, more preferably, for  $\text{R}^1$  and  $\text{R}^2$  the alkyl group is C1 to C5.

34. (Currently Amended) AThe compound according to any one of claims 32 to 33 claim 32 wherein X is selected from the group consisting of  $\text{C}(\text{O})\text{NH}$ ,  $\text{C}(\text{S})\text{NH}$ ,  $\text{SO}_2$ , and  $\text{C}(\text{O})$ .

35. (Currently Amended) AThe compound according to any one of claims 32 to 34 claim 32 wherein the fluorescent moiety is selected from the group consisting of unsubstituted and substituted fluorescein moieties, unsubstituted and substituted dansyl moieties, and unsubstituted and substituted coumarin moieties.

36. (Currently Amended) AThe compound according to any one of claims 32 to 35 claim 32 wherein R<sup>1</sup> and R<sup>2</sup> are OH; R<sup>2</sup> and R<sup>3</sup> are independently selected from H or OH; R<sup>6</sup> is selected from H or CH<sub>3</sub>, and R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently selected from the group H, OH, CH<sub>3</sub>, F, and I.

37. (Currently Amended) AThe compound according to any one of claims 32 to 36 claim 32 wherein the fluorescent moiety is attached by derivatisation to an ecdysteroid is selected from the group consisting of ponasterone A, 20-hydroxyecdysone, muristerone A, makisterone A, polyopidine B, rapisterone D, 2 $\beta$ ,3 $\beta$ ,20R,22R-tetrahydroxy-25-fluoro-5 $\beta$ -cholest-8,14-dien-6-one, 5-deoxykaladasterone, 26-iodoponasterone A, and 25-fluoroponasterone A.

38. A compound which is an ecdysteroid mimic wherein the compound comprises a non-ecdysteroid moiety that interacts with an ecdysone receptor or ligand binding domain thereof, and wherein the compound further comprises a fluorescent moiety.

39. (Currently Amended) AThe compound according to claim 38 wherein the compound comprises a substituted or unsubstituted dibenzoyl hydrazine moiety that interacts with an ecdysone receptor or ligand binding domain thereof, and wherein the compound further comprises a fluorescent moiety attached through a phenyl ring substituent or a nitrogen atom in the dibenzoyl hydrazine moiety.

40. (Currently Amended) A method for screening a candidate compound for its ability to interact with an ecdysone receptor or ligand binding domain (LBD) thereof in a competitive inhibition format, the method comprising the steps of:

- incubating with an ecdysone receptor or LBD thereof, a candidate compound and the derivative according to any one of claims 1 to 19 claim 1; and
- measuring the extent of binding of the derivative according to any one of claims 1 to 19 claim 1 to the ecdysone receptor or LBD thereof.

41. (Currently Amended) A method for screening a candidate compound for its ability to interact with an ecdysone receptor or ligand binding domain (LBD) thereof in a competitive inhibition format, the method comprising the steps of:

- incubating with an ecdysone receptor or LBD thereof, a candidate compound and the compound according to any one of claims 20 to 37 claim 20; and
- measuring the extent of binding of the compound according to any one of claims 20 to 37 claim 20 to the ecdysone receptor or LBD thereof.

42. (Currently Amended) A method for screening a candidate compound for its ability to interact with an ecdysone receptor or ligand binding domain (LBD) thereof in a competitive inhibition format, the method comprising the steps of:

(a) incubating with an ecdysone receptor or LBD thereof, a candidate compound and the derivative according to any one of claims 38 or 39claim 38; and

(b) measuring the extent of binding of the derivative according to any one of claims 38 or 39claim 38 to the ecdysone receptor or LBD thereof.

43. (Currently Amended) AThe method according to any one of claims 40-42claim 40, wherein the competitive inhibition format is a fluorescence polarization assay.

44. (Currently Amended) AThe method according to any one of claims 40 to 43claim 40, wherein the assay is conducted in a microtitre plate well.

45. (Currently Amended) An insecticidal compound identified by the assay according to any one of claims 40 to 44claim 40.

46. (Currently Amended) An effector compound for ecdysone receptor gene switches, the compound identified by the assay according to any one of claims 40 to 44claim 40.